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Referred to the Committee on Science, and in addition to the Committees on Resources and Transportation and Infrastructure, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

AN ACT

To authorize and strengthen the National Oceanic and Atmospheric Administration's tsunami detection, forecast, warning, and mitigation program, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Tsunami Preparedness
5 Act”.

1 **SEC. 2. FINDINGS AND PURPOSES.**

2 (a) FINDINGS.—The Congress finds the following:

3 (1) Tsunami are a series of large waves of long
4 wavelength created by the displacement of water by
5 violent undersea disturbances such as earthquakes,
6 volcanic eruptions, landslides, explosions, and the
7 impact of cosmic bodies.

8 (2) Tsunami have caused, and can cause in the
9 future, enormous loss of human life, injury, destruc-
10 tion of property, and economic and social disruption
11 in coastal and island communities.

12 (3) While 85 percent of tsunami occur in the
13 Pacific Ocean, and coastal and island communities
14 in this region are the most vulnerable to the destruc-
15 tive results, tsunami can occur at any point in any
16 ocean or related body of water where there are
17 earthquakes, volcanoes, or any other activity that
18 displaces a large volume of water.

19 (4) A number of States and territories are sub-
20 ject to the threat of tsunamis, including Alaska,
21 California, Hawaii, Oregon, Washington, American
22 Samoa, the Commonwealth of the Northern Mariana
23 Islands, Guam, Puerto Rico, and the U.S. Virgin Is-
24 lands.

25 (5) The National Oceanic and Atmospheric Ad-
26 ministration is responsible for maintaining a tsu-

1 nami detection and warning system for the Nation,
2 issuing warnings to United States communities at
3 risk from tsunami, and preparing those communities
4 to respond appropriately, through—

5 (A) the Pacific Tsunami Warning Center
6 in Ewa Beach, Hawaii, which serves as a warn-
7 ing center for Hawaii, all other United States
8 assets in the Pacific, and Puerto Rico;

9 (B) the Alaska/West Coast Tsunami Warn-
10 ing Center in Palmer, Alaska, which is respon-
11 sible for issuing warnings for Alaska, British
12 Columbia, California, Oregon, and Washington;

13 (C) the Federal-State national tsunami
14 hazard mitigation program;

15 (D) a tsunami research and assessment
16 program, including programs conducted by the
17 Pacific Marine Environmental Laboratory;

18 (E) the TsunamiReady Program, which
19 educates and prepares communities for survival
20 before and during a tsunami;

21 (F) an archive of historical tsunami data,
22 held at the National Oceanic and Atmospheric
23 Administration's National Geophysical Data
24 Center; and

1 (G) other related programs, including
2 those operated in coordination with academic
3 institutions.

4 (6) The National Oceanic and Atmospheric Ad-
5 ministration also represents the United States as a
6 member of the International Coordination Group for
7 the Tsunami Warning System in the Pacific, admin-
8 istered by the Intergovernmental Oceanographic
9 Commission of UNESCO, for which the Pacific Tsu-
10 nami Warning Center acts as the operational center
11 and shares seismic and water level information with
12 26 member states, and maintains UNESCO's Inter-
13 national Tsunami Information Center, in Honolulu,
14 Hawaii, which provides technical and educational as-
15 sistance to member states.

16 (7) The Tsunami Warning Centers receive seis-
17 mographic information from the Global Seismic Net-
18 work, an international system of earthquake moni-
19 toring stations, from the United States Geological
20 Survey National Earthquake Information Center,
21 the Alaska Earthquake Information Center, and co-
22 operative regional seismic networks, and use these
23 data to issue tsunami warnings and integrate the in-
24 formation with data from their own tidal and deep
25 ocean monitoring stations, to cancel or verify the ex-

1 istence of a damaging tsunami. Warnings are dis-
2 seminated by the National Oceanic and Atmospheric
3 Administration to State emergency operation cen-
4 ters.

5 (8) Current gaps in the International Tsunami
6 Warning System, such as the lack of regional warn-
7 ing systems in the Indian Ocean, the southwest Pa-
8 cific Ocean, Central and South America, the Medi-
9 terranean Sea, and Caribbean, pose risks for coastal
10 and island communities.

11 (9) The tragic and extreme loss of life experi-
12 enced by countries in the Indian Ocean following the
13 magnitude 9.0 earthquake and resulting tsunami in
14 that region on December 26, 2004, illustrates the
15 destructive consequences which can occur in the ab-
16 sence of an effective tsunami warning and notifica-
17 tion system.

18 (10) An effective tsunami warning and notifica-
19 tion system is part of a multi-hazard disaster warn-
20 ing and preparedness program and requires real-
21 time seismic, sea level, and oceanographic data,
22 high-speed data analysis capabilities, a high-speed
23 tsunami warning and notification system, a sus-
24 tained program of education and risk assessment to
25 develop response strategies, and an established local

1 infrastructure for timely and effective dissemination
2 of warnings to activate evacuation of tsunami hazard
3 zones.

4 (11) The Tsunami Warning System for the Pa-
5 cific is a model for other regions of the world to
6 adopt, and can be expanded and modernized to in-
7 crease detection, forecast, and warning capabilities
8 for vulnerable states and territories, reduce the inci-
9 dence of costly false alarms, improve reliability of
10 measurement and assessment technology, and in-
11 crease community preparedness.

12 (12) Tsunami warning and preparedness capa-
13 bility can be developed in other vulnerable areas of
14 the world, such as the Indian Ocean, by identifying
15 tsunami hazard zones, educating populations, devel-
16 oping alert and notification infrastructure, and by
17 deploying near real-time tsunami detection sensors
18 and gauges, establishing hazard notification and
19 warning networks, expanding global monitoring of
20 seismic activity, encouraging the increased exchange
21 of seismic and tidal data between nations, and im-
22 proving international coordination when a tsunami is
23 detected.

24 (13) UNESCO has recognized the need to es-
25 tablish tsunami warning systems for regions beyond

1 the Pacific Basin that are vulnerable to tsunami, in-
2 cluding the Indian Ocean, and has convened a work-
3 ing group to lead an effort to expand the Inter-
4 national Tsunami Warning System in the Pacific to
5 such vulnerable regions.

6 (14) The international community and all vul-
7 nerable nations should take coordinated efforts to
8 establish and participate in regional tsunami warn-
9 ing systems and other hazard warnings systems de-
10 veloped to meet the goals of the United Nations
11 International Strategy for Disaster Reduction.

12 (15) On February 16, 2005, the United States,
13 together with 53 other Nations participating in the
14 Third Earth Observation Summit in Brussels, Bel-
15 gium, adopted a 10-year implementation plan as the
16 basis for establishing the Global Earth Observation
17 System of Systems.

18 (16) The Global Earth Observation System of
19 Systems will consist of existing and future earth ob-
20 servation systems, including the United States tsu-
21 nami detection and warning system.

22 (b) PURPOSES.—The purposes of this Act are—

23 (1) to improve tsunami detection, forecast,
24 warnings, notification, preparedness, and mitigation

1 in order to protect life and property both in the
2 United States and elsewhere in the world;

3 (2) to improve and modernize the existing Pa-
4 cific Tsunami Warning System to increase coverage,
5 reduce false alarms and increase accuracy of fore-
6 casts and warnings, and expand detection and warn-
7 ing systems to include other vulnerable States and
8 United States territories, including the Caribbean/
9 Atlantic/Gulf region;

10 (3) to increase and accelerate mapping, mod-
11 eling, research, assessment, education, and outreach
12 efforts in order to improve forecasting, prepared-
13 ness, mitigation, response, and recovery of tsunami
14 and related coastal hazards;

15 (4) to provide technical and other assistance to
16 speed international efforts to establish regional tsu-
17 nami warning systems in vulnerable areas worldwide,
18 including the Indian Ocean; and

19 (5) to improve Federal, State, and international
20 coordination for tsunami and other coastal hazard
21 warnings and preparedness.

22 **SEC. 3. TSUNAMI DETECTION AND WARNING SYSTEM.**

23 (a) IN GENERAL.—The Administrator of the Na-
24 tional Oceanic and Atmospheric Administration shall oper-
25 ate regional tsunami detection and warning systems for

1 the Pacific Ocean region and for the Atlantic Ocean, Car-
 2ibbean, and Gulf of Mexico region that will provide max-
 3imum detection capability for United States coastal tsu-
 4nami.

5 (b) SYSTEM REQUIREMENTS.—

6 (1) PACIFIC SYSTEM.—The Pacific tsunami
 7 warning system shall cover the entire Pacific Ocean
 8 area, including the Western Pacific, the Central Pa-
 9cific, the North Pacific, the South Pacific, and the
 10 East Pacific and Arctic areas.

11 (2) ATLANTIC, CARIBBEAN, AND GULF OF MEX-
 12ICO SYSTEM.—The Atlantic, Caribbean, and Gulf
 13 system shall cover areas of the Atlantic Ocean, Car-
 14ibbean Sea, and the Gulf of Mexico that the Admin-
 15istrator determines—

16 (A) to be geologically active, or to have sig-
 17nificant potential for geological activity; and

18 (B) to pose measurable risks of tsunamis
 19for States along the coastal areas of the Atlan-
 20tic Ocean or the Gulf of Mexico.

21 (3) COMPONENTS.—The systems shall—

22 (A) utilize an array of deep ocean detection
 23buoys, including redundant and spare buoys;

24 (B) include an associated tide gauge and
 25water level system designed for long-term con-

1 tinuous operation tsunami transmission capa-
2 bility;

3 (C) allow for such additional sensors as
4 may be necessary for tsunami and weather
5 warnings and forecasts;

6 (D) provide for the establishment of a co-
7 operative effort between the National Oceanic
8 and Atmospheric Administration and the
9 United States Geological Survey under which
10 the Geological Survey and State earthquake in-
11 formation centers provide rapid and reliable
12 real-time seismic information to the Adminis-
13 tration from international and domestic seismic
14 networks;

15 (E) provide for information and data proc-
16 essing through the tsunami warning centers es-
17 tablished under subsection (c);

18 (F) be integrated into United States and
19 global ocean and earth observing systems, in-
20 cluding the Global Earth Observation System of
21 Systems;

22 (G) provide an infrastructure, building on
23 local systems, for at-risk tsunami communities
24 that supports rapid and reliable alert and noti-
25 fication to the public, such as the National Oce-

anic and Atmospheric Administration's Weather, Alert, and Readiness Network, which includes the weather radio and the All Hazard Alert Broadcasting Radio; and

(H) the integration of NOAA's Advanced Weather Interactive Processing System with other technologies.

(4) FEDERAL COOPERATION.—In deploying and maintaining detection buoys utilized in the tsunami warning system, the Administrator should leverage the assistance and assets of the United States Coast Guard, the Navy, and other Federal agency assets in the region. Within 180 days after the date of enactment of this Act, the Administrator shall provide a report to the Senate committee on Commerce, Science, and Transportation, the House of Representatives Committee on Science, and the House of Representatives Committee on Resources that summarizes the extent to which the United States Coast Guard or any other Federal agency is assistance in deploying and maintaining such buoys.

(c) TSUNAMI WARNING CENTERS.—

(1) IN GENERAL.—The Administrator shall establish tsunami warning centers to provide a link between the detection and warning system and the tsu-

1 nami hazard mitigation program established under
2 section 4 including—

3 (A) a Pacific Tsunami Warning Center in
4 Hawaii;

5 (B) a West Coast and Alaska Tsunami
6 Warning Center in Alaska; and

7 (C) any additional warning centers deter-
8 mined by the Administrator to be necessary.

9 (2) RESPONSIBILITIES.—The responsibilities of
10 each tsunami warning center shall include—

11 (A) continuously monitoring data from
12 seismological stations, deep ocean detection
13 buoys, and tidal monitoring stations and pro-
14 viding such data to the national tsunami ar-
15 chive;

16 (B) evaluating earthquakes that have the
17 potential to generate tsunami;

18 (C) evaluating deep ocean buoy data and
19 tidal monitoring stations for indications of tsu-
20 nami resulting from sources other than earth-
21 quakes; and

22 (D) disseminating information and warn-
23 ing bulletins appropriate for local and distant
24 tsunamis to government agencies and the public

1 and alerting potentially impacted coastal areas
2 for evacuation.

3 (d) DATA MANAGEMENT.—The Administrator shall
4 maintain national and regionally-based data management
5 systems to support and establish data management re-
6 quirements for the tsunami detection and monitoring sys-
7 tem, including requirements for—

8 (1) quality control and quality assurance;

9 (2) archiving and maintaining data;

10 (3) supporting integration of observations from
11 the system with other national and international
12 water level measurements, such as the Global Sea
13 Level Monitoring System;

14 (4) integration of observations from the system
15 with other elements of the global and coastal compo-
16 nents of the integrated ocean and coastal observing
17 system and the Global Earth Observation System of
18 Systems; and

19 (5) the development of and access to data sets
20 and integrated data products designed to support
21 multi-hazard regional vulnerability assessment and
22 adaptation programs such as the program estab-
23 lished under section 8.

1 **SEC. 4. TSUNAMI HAZARD MITIGATION PROGRAM.**

2 (a) IN GENERAL.—The Administrator of the Na-
3 tional Oceanic and Atmospheric Administration shall, in
4 coordination with other agencies and academic institu-
5 tions, develop and conduct a community-based tsunami
6 hazard mitigation program to improve tsunami prepared-
7 ness of at-risk areas.

8 (b) COORDINATING COMMITTEE.—In developing and
9 conducting the program, the Administrator shall establish
10 a coordinating committee comprising representatives of
11 Federal agencies and other governmental entities involved
12 in tsunami mitigation and response, including—

13 (1) the National Oceanic and Atmospheric Ad-
14 ministration;

15 (2) the United States Geological Survey;

16 (3) the National Science Foundation;

17 (4) the National Institute of Standards and
18 Technology; and

19 (5) affected coastal States and territories.

20 (c) PROGRAM COMPONENTS.—The program shall—

21 (1) improve the quality and extent of inunda-
22 tion mapping, including assessment of vulnerable
23 inner coastal areas;

24 (2) promote and improve community outreach
25 and education networks and programs to ensure
26 community awareness and readiness, including the

1 development of multi-hazard risk and vulnerability
2 assessment training and decision support tools, im-
3 plementation of technical training and public edu-
4 cation programs, and provide for certification of pre-
5 pared communities;

6 (3) integrate tsunami awareness, preparedness,
7 and mitigation programs into ongoing hazard warn-
8 ing and risk management programs in affected areas
9 including the National Response Plan and State
10 coastal zone management plans;

11 (4) promote the adoption of tsunami warning
12 and mitigation measures by Federal, State, tribal,
13 and local governments and non-governmental entities
14 through a grant program for training, development
15 of guidelines, and other purposes;

16 (5) develop tsunami specific rescue and recovery
17 guidelines for the National Response Plan, including
18 long-term mitigation measures, educational pro-
19 grams regarding the consequences of development in
20 high-risk areas, and use of remote sensing and other
21 technology in rescue and recovery operations;

22 (6) require budget coordination, through the
23 Administration, to carry out the purposes of this Act
24 and to ensure that participating agencies provide

1 necessary funds for matters within their respective
2 areas of authority and expertise; and

3 (7) provide for periodic external review of the
4 program and for inclusion of the results of such re-
5 views in the report required by section 6(e).

6 **SEC. 5. TSUNAMI RESEARCH PROGRAM.**

7 (a) ESTABLISHMENT.—The Administrator of the Na-
8 tional Oceanic and Atmospheric Administration shall, in
9 coordination with other agencies and academic institu-
10 tions, establish a tsunami research program to develop de-
11 tection, prediction, communication, and mitigation science
12 and technology that supports tsunami forecasts and warn-
13 ings, including advanced sensing techniques, information
14 and communication technology, data collection, analysis
15 and assessment for tsunami tracking and numerical fore-
16 cast modeling that will—

17 (1) help determine—

18 (A) whether an earthquake or other seis-
19 mic event will result in a tsunami; and

20 (B) the likely path, severity, duration, and
21 travel time of a tsunami;

22 (2) develop techniques and technologies that
23 may be used to communicate tsunami forecasts and
24 warnings as quickly and effectively as possible to af-
25 fected communities;

1 (3) develop techniques and technologies to sup-
2 port evacuation products, including real-time notice
3 of the condition of critical infrastructure along tsu-
4 nami evacuation routes for public officials and first
5 responders; and

6 (4) develop techniques for utilizing remote sens-
7 ing technologies in rescue and recovery operations.

8 (b) TECHNOLOGY.—The Administrator, in consulta-
9 tion with other appropriate Federal agencies, shall inves-
10 tigate the potential for improved technology for tsunami
11 and other hazard warnings by incorporating into the exist-
12 ing system a full range of options for providing those
13 warnings to the public.

14 **SEC. 6. TSUNAMI SYSTEM UPGRADE AND MODERNIZATION.**

15 (a) SYSTEM UPGRADES.—The Administrator of the
16 National Oceanic and Atmospheric Administration shall—

17 (1) authorize and direct the immediate repair of
18 existing deep ocean detection buoys and related com-
19 ponents of the system;

20 (2) ensure the deployment of an array of deep
21 ocean detection buoys capable of carrying multi-ob-
22 servation technology in the regions described in sec-
23 tion 3(a) of this Act;

1 (3) ensure expansion or upgrade of the seismic
2 monitoring and tide gauge networks in the regions
3 described in section 3(a); and

4 (4) complete the upgrades not later than De-
5 cember 31, 2007.

6 (b) TRANSFER OF TECHNOLOGY; MAINTENANCE AND
7 UPGRADES.—In carrying out this section, the Adminis-
8 trator shall—

9 (1) promulgate specifications and standards for
10 forecast, detection, and warning systems, including
11 detection equipment;

12 (2) develop and execute a plan for the transfer
13 of technology from ongoing research to long-term
14 operations;

15 (3) ensure that detection equipment is main-
16 tained in operational condition to fulfill the fore-
17 casting, detection and warning requirements of the
18 regional tsunami detection and warning systems;

19 (4) obtain, to the greatest extent practicable,
20 priority treatment in budgeting for, acquiring, trans-
21 porting, and maintaining weather sensors, tide
22 gauges, water level gauges, and tsunami buoys incor-
23 porated into the system including obtaining ship
24 time; and

1 (5) ensure integration of the tsunami detection
2 system with other United States and global ocean
3 and coastal observation systems, the Global Earth
4 Observation System of Systems, global seismic net-
5 works, and the Advanced National Seismic System.

6 (c) CERTIFICATION.—Amounts appropriated for any
7 fiscal year pursuant to section 9 to carry out this section
8 may not be obligated or expended for the acquisition of
9 services for construction or deployment of tsunami detec-
10 tion equipment unless the Administrator certifies in writ-
11 ing to the Senate Committee on Commerce, Science, and
12 Transportation, the House of Representatives Committee
13 on Science, and the House of Representatives Committee
14 on Resources within 60 calendar days after the date on
15 which the President submits the Budget of the United
16 States for that fiscal year to the Congress that—

17 (1) each contractor for such services has met
18 the requirements of the contract for such construc-
19 tion or deployment;

20 (2) the equipment to be constructed or deployed
21 is capable of becoming fully operational without the
22 obligation or expenditure of additional appropriated
23 funds; and

1 (3) the Administrator does not reasonably fore-
2 see unanticipated delays in the deployment and oper-
3 ational schedule specified in the contract.

4 (d) CONGRESSIONAL NOTIFICATIONS.—The Adminis-
5 trator shall notify the Senate Committee on Commerce,
6 Science, and Transportation, the House of Representa-
7 tives Committee on Science, and the House of Representa-
8 tives Committee on Resources of—

9 (1) impaired regional detection coverage due to
10 equipment or system failures; and

11 (2) significant contractor failures or delays in
12 completing work associated with the tsunami detec-
13 tion and warning system.

14 (e) ANNUAL REPORT.—The Administrator shall
15 transmit an annual report to the Senate Committee on
16 Commerce, Science, and Transportation and the House of
17 Representatives Committee on Science the status of the
18 tsunami detection and warning system, including accu-
19 racy, false alarms, equipment failures, improvements over
20 the previous year, and goals for further improvement (or
21 plans for curing failures) of the system, as well as progress
22 and accomplishments of the national tsunami hazard miti-
23 gation program.

24 (f) EXTERNAL REVIEW.—The National Academy of
25 Science shall review the tsunami detection, forecast, and

1 warning system operated by the National Oceanic and At-
2 mospheric Administration under this Act to assess further
3 modernization and coverage needs, as well as long-term
4 operational reliability issues, taking into account measures
5 implemented under this Act, and transmit a report con-
6 taining its recommendations, including an estimate of the
7 costs of implementing those recommendations, to the Sen-
8 ate Committee on Commerce, Science, and Transportation
9 and the House of Representatives Committee on Science
10 within 24 months after the date of enactment of this Act.

11 **SEC. 7. GLOBAL TSUNAMI WARNING AND MITIGATION NET-**
12 **WORK.**

13 (a) INTERNATIONAL TSUNAMI WARNING SYSTEM.—
14 The Administrator of the National Oceanic and Atmos-
15 pheric Administration, in coordination with other mem-
16 bers of the United States Interagency Committee of the
17 National Tsunami Mitigation Program, shall provide tech-
18 nical assistance and advice to the Intergovernmental
19 Oceanographic Commission of UNESCO, the World Mete-
20 orological Organization, the Group on Earth Observations,
21 and other international entities, as part of international
22 efforts to develop a fully functional global tsunami warn-
23 ing system comprised of regional tsunami warning net-
24 works, modeled on the International Tsunami Warning
25 System of the Pacific, and consistent with the 10-year im-

1 plementation plan for the Global Earth Observation Sys-
 2 tem of Systems.

3 (b) INTERNATIONAL TSUNAMI INFORMATION CEN-
 4 TER.—The Administrator shall operate an International
 5 Tsunami Information Center to improve tsunami pre-
 6 paredness for all Pacific Ocean nations participating in
 7 the International Tsunami Warning System of the Pacific,
 8 and which may also provide such assistance to other na-
 9 tions participating in a global tsunami warning system es-
 10 tablished through the International Oceanographic Com-
 11 mittee of UNESCO. As part of its responsibilities in the
 12 Pacific, the Center shall—

13 (1) monitor international tsunami warning ac-
 14 tivities in the Pacific;

15 (2) assist member states in establishing na-
 16 tional warning systems, and make information avail-
 17 able on current technologies for tsunami warning
 18 systems;

19 (3) maintain a library of materials to promul-
 20 gate knowledge about tsunamis in general and for
 21 use by the scientific community; and

22 (4) disseminate information, including edu-
 23 cational materials and research reports.

24 (c) TECHNICAL ASSISTANCE.—In carrying out this
 25 section, the Administrator—

1 (1) shall give priority to assisting nations in
2 identifying vulnerable coastal areas, creating inunda-
3 tion maps, obtaining or designing real-time detection
4 and reporting equipment, and establishing commu-
5 nication and warning networks and contact points in
6 each vulnerable nation;

7 (2) may establish a process for transfer of de-
8 tection and communication technology to affected
9 nations for the purposes of establishing the inter-
10 national tsunami warning system; and

11 (3) shall provide technical and other assistance
12 to support international tsunami education, re-
13 sponse, vulnerability, and adaptation programs.

14 (d) DATA-SHARING REQUIREMENT.—The Adminis-
15 trator may not provide assistance under this section for
16 any region unless all affected nations in that region par-
17 ticipating in the tsunami warning network agree to share
18 relevant data associated with the development and oper-
19 ation of the network.

20 (e) FUNDING ASSISTANCE.—The Administrator, in
21 coordination with the Secretary of State, shall seek fund-
22 ing assistance from participating nations needed to ensure
23 establishment of a fully functional global tsunami warning
24 system.

1 (f) RECEIPT OF INTERNATIONAL REIMBURSEMENT
 2 AUTHORIZED.—The Administrator may accept payment
 3 to, or reimbursement of, the National Oceanic and Atmos-
 4 pheric Administration in cash or in kind from inter-
 5 national organizations and foreign authorities, or payment
 6 or reimbursement made on behalf of such an authority,
 7 for expenses incurred by the Administrator in carrying out
 8 any activity under this Act. Any such payments or reim-
 9 bursements shall be considered a reimbursement to the ap-
 10 propriated funds of the Administration.

11 **SEC. 8. COASTAL COMMUNITY VULNERABILITY AND ADAP-**
 12 **TATION PROGRAM.**

13 (a) ESTABLISHMENT.—The Administrator of the Na-
 14 tional Oceanic and Atmospheric Administration shall es-
 15 tablish an integrated coastal vulnerability and adaptation
 16 program focused on improving the resilience of coastal
 17 communities to natural hazards and disasters. The pro-
 18 gram shall be regional in nature, build upon and integrate
 19 existing Federal and State programs, and provide usable
 20 products that will improve preparedness of communities,
 21 businesses, and government entities. The program may in-
 22 clude the following activities:

23 (1) Development of multi-hazard vulnerability
 24 maps to characterize and assess risks of coastal

1 communities to a range of natural hazards and pro-
2 vide a baseline for assessing future risks.

3 (2) Multi-disciplinary vulnerability assessment
4 research and education that will help integrate risk
5 management with community development planning
6 and policies.

7 (3) Risk management and leadership training
8 for the public, local officials, and institutions that
9 will enhance understanding and preparedness.

10 (4) Risk assessment technology development,
11 including research and development of emerging
12 technologies and practical application of existing or
13 emerging technologies, such as modeling, remote
14 sensing, geospatial technology, engineering, and ob-
15 serving systems.

16 (5) Risk management data and information
17 services, including access to data and products de-
18 rived from observing and detection systems, as well
19 as development and maintenance of new integrated
20 data products that would support risk assessment
21 and risk management programs.

22 (6) Risk notification systems that coordinate
23 with and build upon existing systems and actively
24 engage policy officials, government agencies, busi-

1 nesses, communities, non-governmental organiza-
2 tions, and the media.

3 (b) REGIONAL PILOT PROJECTS.—

4 (1) In general.—Within 1 year after the date of
5 enactment of this Act, the Administrator shall, in
6 consultation with the appropriate Federal, State,
7 tribal, and local governmental entities, establish 3
8 pilot projects to conduct regional assessments of the
9 vulnerability of coastal areas of the United States to
10 hazards associated with tsunami and other natural
11 hazards or coastal disasters. Priority shall be given
12 to collaborative partnership proposals from region-
13 ally-based multi-organizational coalitions. In pre-
14 paring the regional assessments, the Administrator
15 shall collect and compile current information on tsu-
16 nami and other natural hazards or coastal disasters.

17 (2) SCOPE.—Regional assessments under the
18 pilot program shall include an evaluation of—

19 (A) the social impacts associated with
20 threats to and potential losses of housing, com-
21 munities, and infrastructure;

22 (B) the physical impacts such as coastal
23 erosion, flooding and loss of estuarine habitat,
24 saltwater intrusion of aquifers and saltwater
25 encroachment, and species migration;

1 (C) the economic impact on local, State,
2 tribal, and regional economies, including the im-
3 pact on coastal infrastructure and the abun-
4 dance or distribution of economically important
5 living marine resources; and

6 (D) opportunities to enhance the resilience
7 of at-risk communities, economic sectors, and
8 natural resources.

9 (c) SELECTION CRITERIA.—The Administrator shall
10 rely on the following criteria in identifying appropriate re-
11 gional pilot projects:

12 (1) Vulnerability to tsunami and other natural
13 hazards or coastal disasters.

14 (2) Dependence on economic sectors and nat-
15 ural resources that are particularly sensitive to
16 coastal hazards.

17 (3) Opportunities to link and leverage related
18 regional risk observation, research, forecasting, as-
19 sessment, educational and risk management pro-
20 grams.

21 (4) Demonstration of strong, interagency col-
22 laboration in the area of risk management for tsu-
23 nami and other natural hazards or coastal disasters.

24 (5) Access to NOAA and other Federal agency
25 programs, facilities, and infrastructure related to

1 tsunami and other coastal hazards monitoring,
2 warning, forecasting, research assessment, and data
3 management.

4 (d) REGIONAL ADAPTATION PLANS.—The Adminis-
5 trator shall, within 3 years after the commencement of
6 each project under subsection (b), submit to the Congress
7 regional adaptation plans—

8 (1) based on the information contained in the
9 regional assessments conducted under subsection
10 (b);

11 (2) developed with the participation of other
12 Federal agencies, State, tribal, and local government
13 agencies, and non-governmental entities (including
14 academia and the private sector) that will be critical
15 in the implementation of the plan at the State, trib-
16 al, and local levels;

17 (3) that recommend targets and strategies to
18 address impacts associated with tsunami and other
19 natural hazards or coastal disasters;

20 (4) that include recommendations for both
21 short- and long-term adaptation strategies; and

22 (5) that include recommendations on—

23 (A) Federal flood insurance program modi-
24 fications;

1 (B) areas that have been identified as high
2 risk through mapping and assessment;

3 (C) enhancing the effectiveness of State
4 coastal zone management programs in miti-
5 gating or preventing coastal risks;

6 (D) mitigation incentives such as rolling
7 easements, strategic retreat, State or Federal
8 acquisition in fee simple or other interest in
9 land, construction standards, and zoning;

10 (E) land and property owner education;

11 (F) economic planning for small commu-
12 nities dependent upon affected coastal re-
13 sources, including fisheries; and

14 (G) funding requirements and mechanisms.

15 (e) TECHNICAL PLANNING AND FINANCIAL ASSIST-
16 ANCE.—The Administrator, through the National Ocean
17 Service, shall establish a coordinated program—

18 (1) to provide technical planning assistance and
19 financial assistance to coastal States, tribes, and
20 local governments as they develop and implement
21 adaptation or mitigation strategies and plans under
22 this section; and

23 (2) to make products, information, tools, and
24 technical expertise generated from the development
25 of the regional assessment and the regional adapta-

There are authorized to be appropriated to the Administrator of the National Oceanic and Atmospheric Administration—

(2) \$5,000,000 for each of such fiscal years to carry out section 8, of which at least \$3,000,000 for each fiscal year shall be used to carry out the pilot projects authorized by section 8(b).

Attest: EMILY J. REYNOLDS,
Secretary.